



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,977	10/10/2000	Hui Liu	05158.P001	4765
7590	03/25/2005		EXAMINER	
Michael J Mallie Blakely Sokoloff Taylor & Zafman LLP 12400 Wilshire Boulevard 7th Floor Los Angeles, CA 90025			NGUYEN, STEVEN H D	
			ART UNIT	PAPER NUMBER
			2665	
DATE MAILED: 03/25/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/685,977	LIU ET AL. 
	<b>Examiner</b>	<b>Art Unit</b>
	Steven HD Nguyen	2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 07 September 2004.
- 2a) This action is **FINAL**.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-33,35 and 36 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-33,35 and 36 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is in response to the amendment filed on 9/7/04. Claim 34 has been canceled and claims 1-33 and 35-36 are pending in the application.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claim 36 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim 36 is vague and indefinite because the claim is depended on a cancel claim.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 1, 3-5, 22-23 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti (USP 5933421) in view of Brucket (USP 5038399).

Regarding claims 1, 3-5, 22-23 and 27-31, Alamouti '421 discloses (Figs 1-4 and col. 1, lines 25 to col. 29, line 5) a cellular network comprising a plurality of subscribers (Fig 1, Ref U,

V, W and X) communicating with the base station using orthogonal frequency division multiple access (OFDMA) (Fig 1); at least one base station (Fig 1, Ref Z) having logic to coordinate multiple-access and information exchange between the at least one base station and the plurality of subscribers, the logic selecting a set of OFDMA traffic channels from a plurality of candidate OFDMA traffic channels based on feedback channel information including channel fading and noise and interference collected from the plurality of subscribers in response to a received signal from the base station via a feedback channel for assigning these channels for the subscriber by using spatial multiplexing (See col. 22, lines 55 to col. 23, line 22, the RUs measure the RSSI and SINR of the received signal from the base station and report this measured signal to the serving base station, col. 24, lines 9-47, the RU “subscriber” measures the RSSI and SINR of the channels in response a received signal from the base station and reports these measured back to the base station which uses these reports for allocating the channels for the RU by using SDMA) and selecting a combination of modulation and coding schemes based on SINR for each accessing subscriber (Col. 14, lines 32-45). However, Alamouti fails to disclose the logic selects a set of channels based on the feedback channel information from the subscribers and channel information collected from at least one other base station or at the base station or allocating a channels through a collaborative channel assignment among multiple base stations. In the same field of endeavor, Bruckert discloses a system and method for selecting channels based on the feedback information such the measured value of RSSI, carrier to interference, CIR “channel characteristic” (Fig 2, Ref 205 and 210 discloses the subscribers of the system measures the received signal from the base stations and feedback this information to the base stations and the collected information from a serving base station (Fig 2, Ref 220) and the neighboring base

station (Fig 2, Ref 225) and a logic unit (Fig 3, Ref 300 for receiving these information and using these information for selecting the channels, Fig 2, Ref 215 and 255 wherein reuse level includes at least one channels, See col. 4, line 29 to col. 5, line 7 and col. 7, lines 48-67).

Since, Alamouti suggests that the subscribers measures the downlink signals from a serving base station and the neighboring base stations and feedback this information to the base station for selecting channels for using to carry the information in time domain (See col. 24, lines 13-23). Brucket suggests that a method and system for receiving the measured value of the uplink of the base stations and downlink of the subscribers for selecting the channels for carrying the user information based on TDMA “time domain”. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for receiving the measured value of the uplink of the base stations and downlink of the subscribers for selecting the channels as disclosed Brucket into Alamouti’s system and method. The motivation would have been to provide a reliable and relatively fast method for assigning the channels to the subscriber units.

6. Claims 2, 7-21, 32-33 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti (USP 5933421) in view of Larsson (USP 5956642) and Brucket (USP 5038399).

Regarding claims 2, 7-21, 32-33 and 35-36, Alamouti ‘421 discloses (Figs 1-4 and col. 1, lines 25 to col. 29, line 5) a cellular network comprising plurality of base station for receiving a feedback signal of the channels such SNIR and gain from the subscribers in response to a receive signals such pilot tone “sound signal” and using this information for assigning the channels to the subscribers based on QOS (Col. 24, lines 24-47 and col. 22, lines 20-24, col. 22, lines 55 to

col. 23, line 22, the RUs measure the RSSI and SINR of the received signal from the base station and report this measured signal to the serving base station) selecting a combination of modulation and coding schemes based on SINR for each accessing subscriber (Col. 14, lines 32-45); a plurality of base stations coordinating to perform the traffic channel assignment (col. 24, lines 13-24) and adjusting weight of the downlink signal based on the feedback of the subscriber (col. 20, lines 25-34). However, Alamouti fails to discloses calculating spatial gains of uplink and downlink based on responses of the spatially separated receivers at the base station wherein channel condition regarding estimating channel gains and interference and antennas; estimating SINR for uplink and downlink signals for using to assigning the traffic channels; estimating SINR for uplink and downlink for accessing and active subscribers and assigning channels to the plurality of subscribers based on channel condition information and estimating gains for uplink and downlink signals for the plurality of subscribers. In the same field of endeavor, Larsson discloses (Figs 1-8 and col. 2, lines 2 to col. 18, lines 19) a system for calculating spatial gains of uplink and downlink based on responses of the spatially separated receivers at the base station wherein channel condition regarding estimating channel gains and interference and antennas; estimating SINR for uplink and downlink signals for using to assigning the traffic channels, for accessing and active subscribers. (Fig 8, Ref 909 for determining uplink and 902 for determining downlink which is feed back to the transmitter via link 908; 914 for determining the best channels to be used by channel allocator for assigning to the communication between the receiver and transmitter); omni-directional antenna for transmitting signals (Fig 1). However, Alamouti and Larsson fail to disclose assigning channels to the plurality of subscribers based on channel condition information and estimating gains for uplink and downlink signals for the

plurality of subscribers or assigning channels based on and the feedback information from the subscribers and at least two base stations. In the same field of endeavor, Brucket discloses a system and method for assigning the channels to subscribers based on the channel condition information and estimating gains for uplink and downlink signals for the plurality of subscribers or assigning channels based on and the feedback information from the subscribers and at least two base stations and uplink estimator (Fig 2, Ref 205 and 210 for using to measuring the signal quality such RSSI “gain” and interference “channel condition” from the base stations to the subscriber “downlink” and Ref 220 and 225 for using to measure the RSSI and interference the signal quality from the subscribers to the base stations and Ref 255 for using to assign channels based on the receiving information “RSSI” and “interference”, See col. 4, lines 28 to col. 5, line 7).

Since, Alamouti suggests that the subscribers measures the downlink signals from a serving base station and the neighboring base stations and feedback this information to the base station for selecting channels for using to carry the information in time domain (See col. 24, lines 13-23). Larsson suggests a system and method for measuring the channel condition for uplink and downlink and using this information for assigning the channels in order to reuse the channels. Brucket suggests that a method and system for receiving the measured value of the uplink of the base stations and downlink of the subscribers for selecting the channels for carrying the user information based on TDMA “time domain” in order to reuse the channels. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for determining the uplink and downlink channel condition and interference between the subscribers and the base station as disclosed by Brucket into the system

and method of Larsson which measures the uplink and downlink gain, SNIR for using to select the channels into Alamouti '421. The motivation would have been to provide a reliable and relatively fast method for assigning the channels to the subscriber units and improve a method and system for channel reuse.

7. Claims 6 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti (USP 5933421) in view of Alamouti (USP 6600776).

Regarding claims 6 and 24-26, Alamouti '421 discloses (Figs 1-4 and col. 1, lines 25 to col. 29, line 5) a cellular network comprising plurality of base station for receiving a feedback signal of the channels such SNIR and gain from the subscribers in response to a receive signals such pilot tone "sound signal" and using this information for assigning the channels to the subscribers (See col. 22, lines 55 to col. 23, line 22, the RUs measure the RSSI and SINR of the received signal from the base station and report this measured signal to the serving base station and Col. 24, lines 24-47). However, Alamouti fail to disclose the subscriber uses the allocated channel for conveying the packets using MAC and receiving an allocation of at least one channels allocated in response to the measured channel and noise plus interference information and channel information from the base station including a second base station other than the first base station. In the same field of endeavor, Brucket discloses a method and system for selecting at least one channels "reuse level" in response to the measured channel, noise plus interference and channel information from the base station includes a second base station other than the first base station (Fig 2, Ref 255 for selecting at least one channels based on the measure channel and noise plus interference, Fig 2, Ref 205 and 210, and channel information from the base stations, Fig 2, Ref 220 and 225). However, Alamouti and Brucket fail to disclose the subscriber uses the

allocated channel for conveying the packets using MAC. In the same field of endeavor, Alamouti discloses a method and system for assigning channels for conveying the data packets between the base and mobile based the feedback information on the channels and using MAC (col. 22, lines 65 to col. 23, lines 15 and col. 45, lines 15-17, col. 54, lines 1-8).

Since, Alamouti suggests that the subscribers measures the downlink signals from a serving base station and the neighboring base stations and feedback this information to the base station for selecting channels for using to carry the information in time domain such PWAN (See col. 24, lines 13-23). Brucket suggests that a method and system for receiving the measured value of the uplink of the base stations and downlink of the subscribers for selecting the channels for carrying the user information based on TDMA “time domain” and Alamouti ‘776 suggests a PWAN system for conveying packet and using MAC. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply MAC and packetizing for conveying information between the base and subscriber as disclosed by Alamouti ‘776 into a method and system of Brucket which use a channel selection scheme based on the measured channel and noise plus interference at the subscriber and channel information from the base stations into the system and method of Alamouti ‘421. The motivation would have been to provide a reliable and relatively fast method for assigning the channels to the subscriber units and improve a method and system for channel reuse.

***Conclusion***

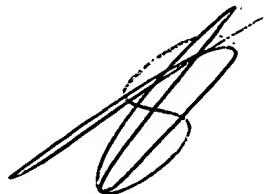
8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steven H.D. Nguyen  
Primary Examiner  
Art Unit 2665  
3/12/05